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**UNIVERSITI SAINS MALAYSIA**

First Semester Examination  
2014/2015 Academic Session

December 2014 / January 2015

**BZT 212/3 - Vertebrate Zoology**  
***[Zoologi Vertebrata]***

Duration : 3 hours  
*[Masa : 3 jam]*

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Please ensure that this examination paper contains **FOUR** printed pages before you begin the examination.

*[Sila pastikan bahawa kertas peperiksaan ini mengandungi **EMPAT** muka surat yang bercetak sebelum anda memulakan peperiksaan ini.]*

**Instructions:** Answer **FIVE** (5) out of **SIX** (6) questions, in English or Bahasa Malaysia. Each question carries 20 marks.

**[Arahan:** Jawab **LIMA** (5) daripada **ENAM** (6) soalan yang diberikan dalam Bahasa Inggeris atau Bahasa Malaysia. Tiap-tiap soalan bernilai 20 markah.]

In the event of any discrepancies, the English version shall be used.

*[Sekiranya terdapat sebarang percanggahan pada soalan peperiksaan, versi Bahasa Inggeris hendaklah diguna pakai].*

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1. Write short notes on the following topics. Select **TWO** (2) from **THREE** (3) topics.

*[Tulis nota ringkas tentang topik berikut. Pilih **DUA** (2) daripada **TIGA** (3) topik.]*

- [a] Group of Order Crocodilia: gharials, crocodiles and alligators.

*[Kumpulan Order Crocodilia: gharial, buaya dan aligator ]*

(10 marks / 10 markah)

- [b] Snake venom.

*[Bisa ular.]*

(10 marks / 10 markah)

- [c] Order Sphenodonta: Tuatara.

*[Order Sphenodonta: Tuatara.]*

(10 marks / 10 markah)

2. Write short notes on the following topics. Select **TWO** (2) from **THREE** (3) topics.

*[Tulis nota ringkas tentang topik berikut. Pilih **DUA** (2) daripada **TIGA** (3) topik.]*

- [a] Coelacanth (Class Osteichthyes)

*[Coelacanth (Kelas Osteichthyes)]*

(10 marks / 10 markah)

- [b] Ecology and reproduction of lamprey (Class Cephalaspidomorphi)

*[Ekologi dan pembiakan lampri (Kelas Cephalaspidomorphi)]*

(10 marks / 10 markah)

- [c] Holocephali (Class Chondrichthyes).

*Holocephali (Kelas Chondrichthyes).]*

(10 marks / 10 markah)

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3. Discuss the fossil records of vertebrates during the Mesozoic Era and the Cenozoic Era.

*[Bincangkan rekod fosil vertebrata semasa Era Mesozoik dan Era Kenozoik.]*

(20 marks / 20 markah)

4. Discuss the following topics :

*[Bincangkan topik berikut :]*

- [a] Order Apoda (Gymnophiona).

*[Order Apoda (Gymnophiona).]*

(10 marks / 10 markah)

- [b] Respiratory system of amphibian.

*[Sistem pernafasan amfibia.]*

(10 marks / 10 markah)

5. Discuss the **FIVE** (5) types of integumentary glands in mammals.

*[Bincangkan **LIMA** (5) jenis kelenjar integumen pada mamalia.]*

(20 marks / 20 markah)

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6. Write short notes on the following topics. Select **TWO** (2) from **THREE** (3) topics.  
*[Tulis nota ringkas tentang topik berikut. Pilih **DUA** (2) daripada **TIGA** (3) topik.]*
- [a] Structure and type of feathers in birds.  
*[Struktur dan jenis bulu burung.]*
- (10 marks / 10 markah)
- [b] Evolution of flight in birds.  
*[Evolusi penerbangan burung.]*
- (10 marks / 10 markah)
- [c] Migration, migration routes and direction finding in migration for birds.  
*[Migrasi, laluan migrasi dan penentuan arah migrasi burung.]*
- (10 marks / 10 markah)

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